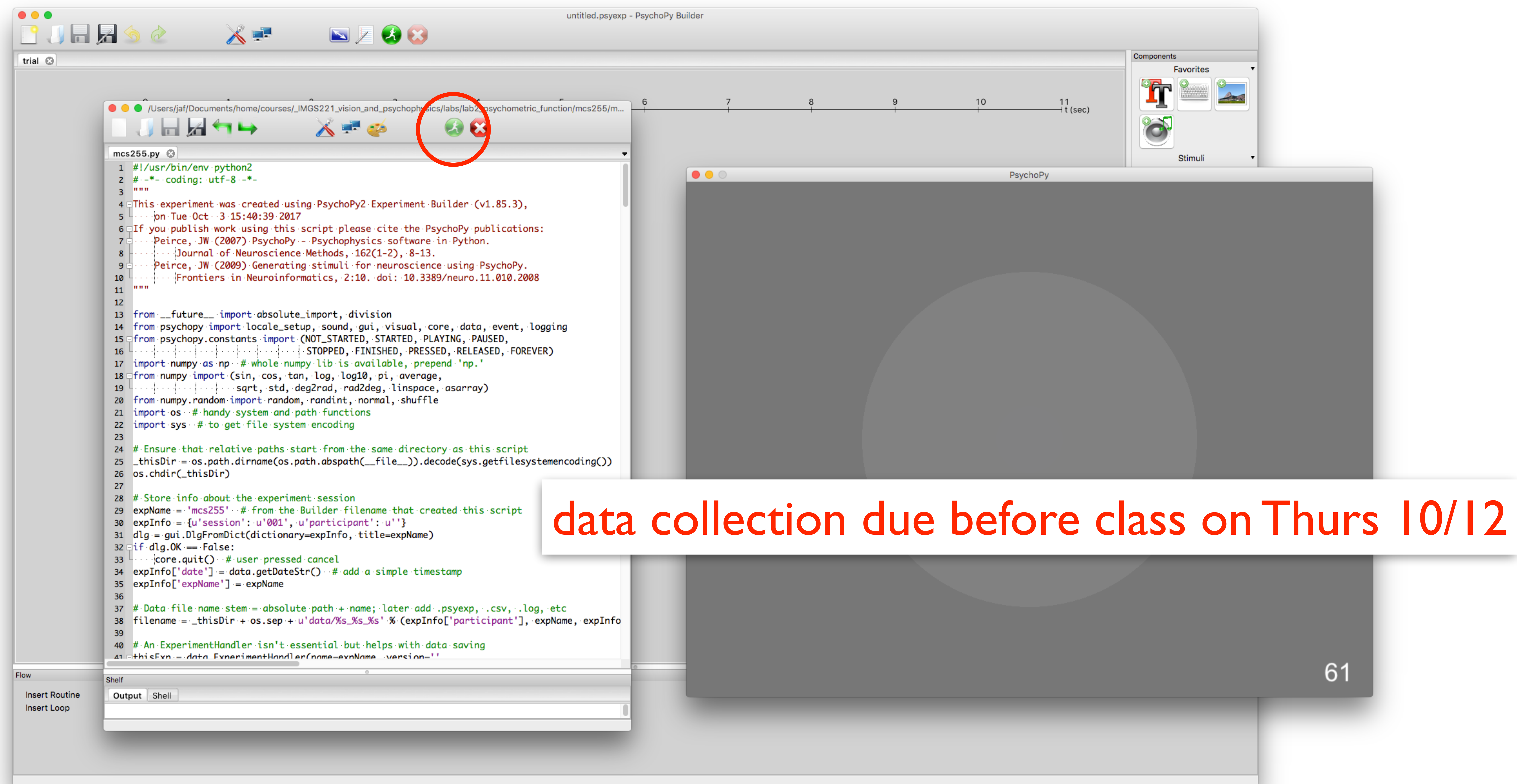


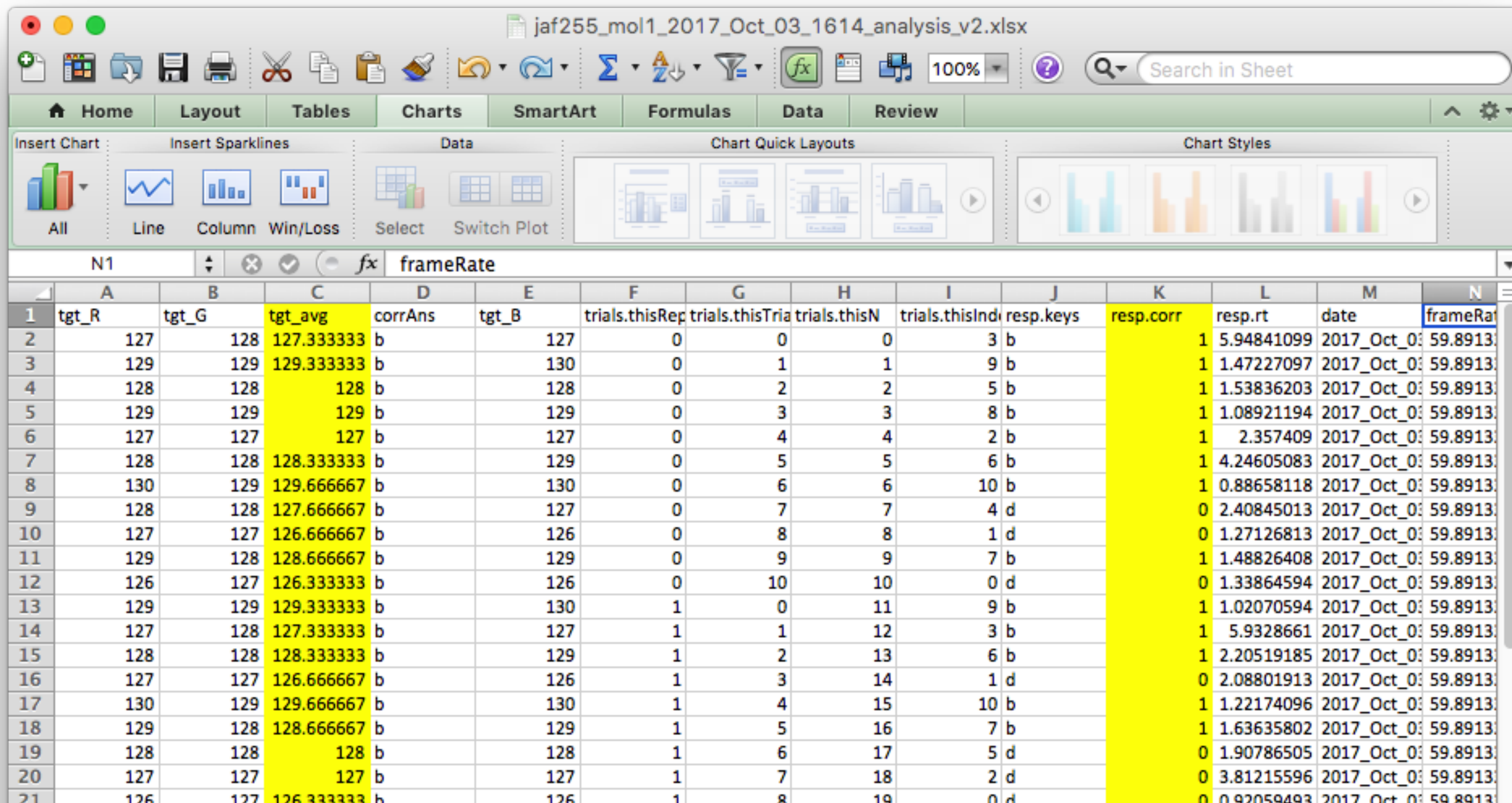
# Lab 2 assignment: MCS experiment



1. Download the zip file containing the method of constant stimuli psychopy experiment code from myCourses (**mcs255.zip**). Unzip the file to extract the experiment code (mcs255.py).
2. The experiment code is a .py file (not .psyexp) so it will need to be run manually from within PsychoPy. To do this start the PsychoPy app, then open the mcs255.py file using the File-> Open menu.
3. Once the mcs255.py code window is open, click on the green runner button to run the experiment. Enter your initials in the “participant” dialog.
4. Complete the 220 trials of the experiment, then quit PsychoPy.



# Lab 2 assignment: MCS analysis



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	tgt_R	tgt_G	tgt_avg	corrAns	tgt_B	trials.thisRep	trials.thisTria	trials.thisN	trials.thisInd	resp.keys	resp.corr	resp.rt	date	frameRate
1	127	128	127.333333	b	127	0	0	0	3	b	1	5.94841099	2017_Oct_03	59.8913
2	129	129	129.333333	b	130	0	1	1	9	b	1	1.47227097	2017_Oct_03	59.8913
3	128	128	128	b	128	0	2	2	5	b	1	1.53836203	2017_Oct_03	59.8913
4	129	129	129	b	129	0	3	3	8	b	1	1.08921194	2017_Oct_03	59.8913
5	127	127	127	b	127	0	4	4	2	b	1	2.357409	2017_Oct_03	59.8913
6	128	128	128.333333	b	129	0	5	5	6	b	1	4.24605083	2017_Oct_03	59.8913
7	130	129	129.666667	b	130	0	6	6	10	b	1	0.88658118	2017_Oct_03	59.8913
8	128	128	127.666667	b	127	0	7	7	4	d	0	2.40845013	2017_Oct_03	59.8913
9	127	127	126.666667	b	126	0	8	8	1	d	0	1.27126813	2017_Oct_03	59.8913
10	129	128	128.666667	b	129	0	9	9	7	b	1	1.48826408	2017_Oct_03	59.8913
11	126	127	126.333333	b	126	0	10	10	0	d	0	1.33864594	2017_Oct_03	59.8913
12	129	129	129.333333	b	130	1	0	11	9	b	1	1.02070594	2017_Oct_03	59.8913
13	127	128	127.333333	b	127	1	1	12	3	b	1	5.9328661	2017_Oct_03	59.8913
14	128	128	128.333333	b	129	1	2	13	6	b	1	2.20519185	2017_Oct_03	59.8913
15	127	127	126.666667	b	126	1	3	14	1	d	0	2.08801913	2017_Oct_03	59.8913
16	130	129	129.666667	b	130	1	4	15	10	b	1	1.22174096	2017_Oct_03	59.8913
17	129	128	128.666667	b	129	1	5	16	7	b	1	1.63635802	2017_Oct_03	59.8913
18	128	128	128	b	128	1	6	17	5	d	0	1.90786505	2017_Oct_03	59.8913
19	127	127	127	b	127	1	7	18	2	d	0	3.81215596	2017_Oct_03	59.8913
20	126	127	126.333333	b	126	1	8	19	0	d	0	0.92059493	2017_Oct_03	59.8913

5. Open the .csv data file produced by the experiment, save the file in .xlsx format
6. Copy the tvt\_avg and resp.corr columns to a new spreadsheet page.



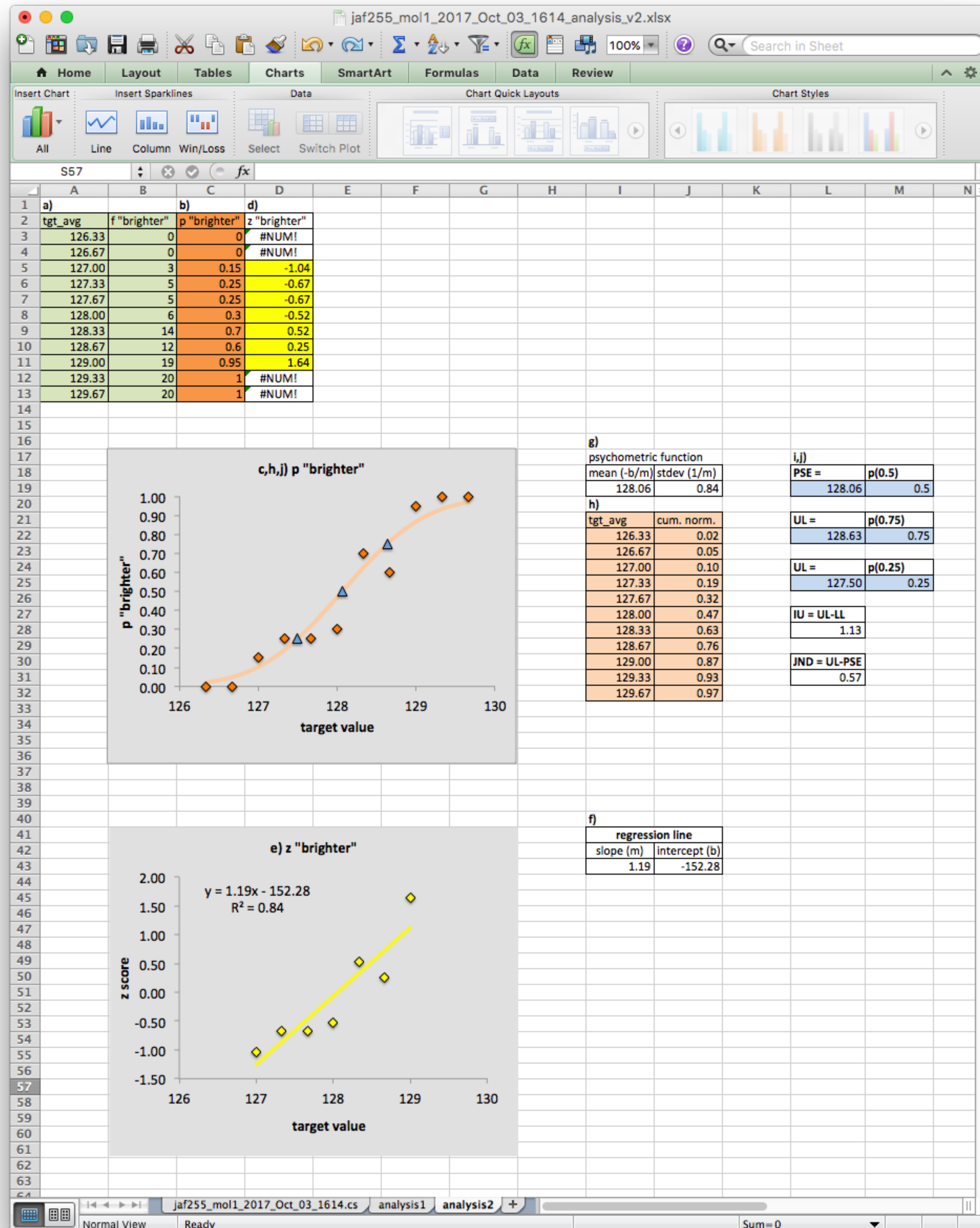
# Lab 2 assignment: MCS analysis

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	tgt_avg	resp.corr	f "brighter"											
2	126.333333	0												
3	126.333333	0												
4	126.333333	0												
5	126.333333	0												
6	126.333333	0												
7	126.333333	0												
8	126.333333	0												
9	126.333333	0												
10	126.333333	0												
11	126.333333	0												
12	126.333333	0												
13	126.333333	0												
14	126.333333	0												
15	126.333333	0												
16	126.333333	0												
17	126.333333	0												
18	126.333333	0												
19	126.333333	0												
20	126.333333	0												
21	126.333333	0	0 =SUM(B2:B21)											
22	126.666667	0												
23	126.666667	0												
24	126.666667	0												
25	126.666667	0												
26	126.666667	0												
27	126.666667	0												
28	126.666667	0												
29	126.666667	0												
30	126.666667	0												
31	126.666667	0												
32	126.666667	0												
33	126.666667	0												
34	126.666667	0												
35	126.666667	0												
36	126.666667	0												
37	126.666667	0												
38	126.666667	0												
39	126.666667	0												
40	126.666667	0												
41	126.666667	0	0 =SUM(B22:B41)											
42	127	1												
43	127	0												

7. Sort the all the data by the tgt\_avg column.
8. Create a new column titled f “brighter”.
9. In this column, sum all the resp.corr values for each tgt\_avg value set as shown.
10. Copy the highlighted data (for all tgt\_avg values) to a new spreadsheet page.



# Lab 2 assignment: MCS analysis



11. **a)** is the copied data showing the target level and the frequency of "brighter" judgements.

12. Calculate the probability of brighter judgments **b)** for each target level by dividing the frequency f by the number of trials:  $p = f/20$ .

13. Plot these probabilities as a function of the target values on a graph titled p "brighter" **c)**.

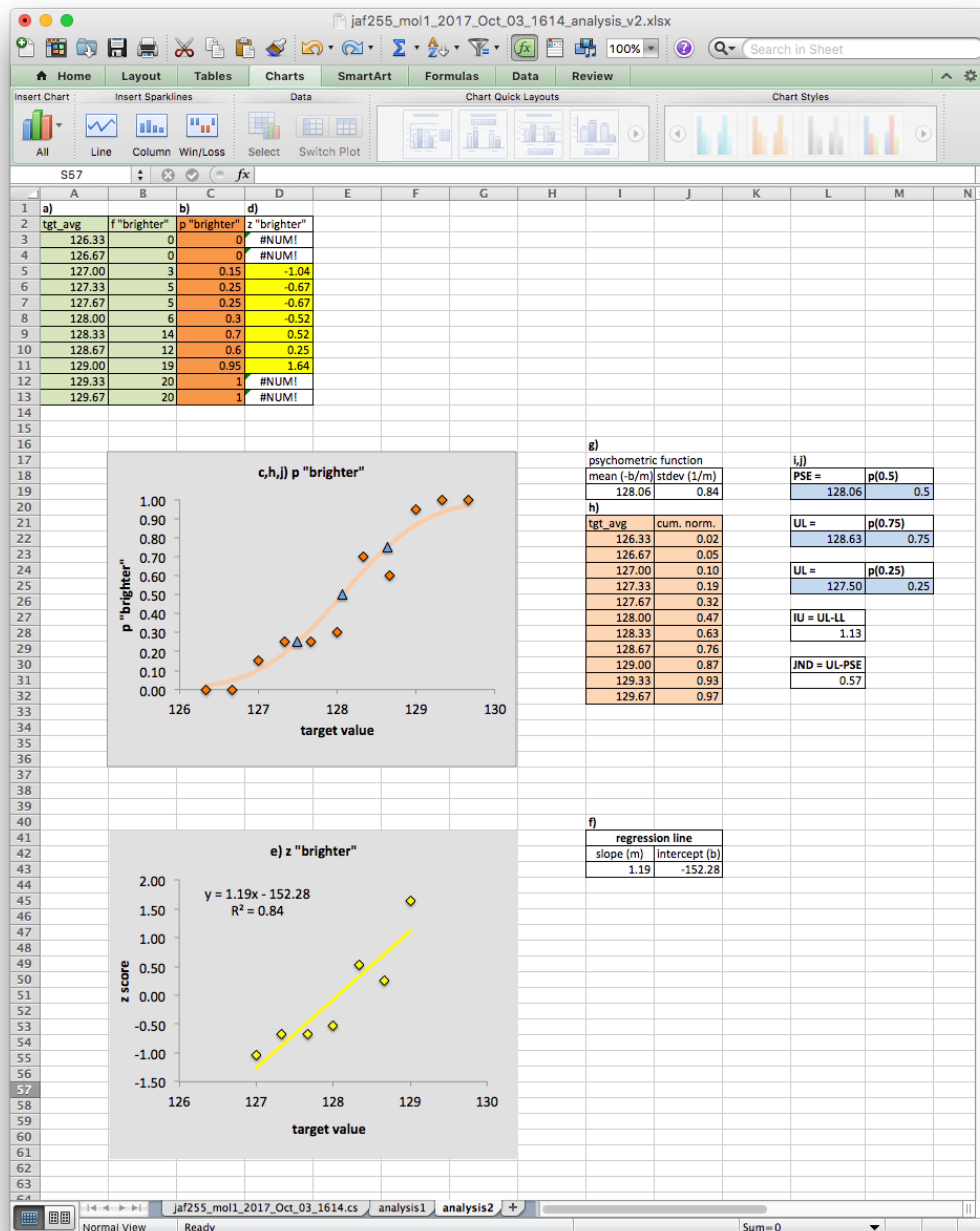
14. Calculate the z scores for the probabilities **d)** using the NORMSINV function.

15. Plot the valid z scores as a function of the target values on a graph titled z "brighter" **e)**.

16. Right click on the data in the graph and use the Add Trendline menu item to fit a regression line to the data (Type - linear, Options - display equation on chart, display R-squared value on chart).



# Lab 2 assignment: MCS analysis



17. Copy the regression line slope and intercept values to a pair of cells **f)**
18. Use these values to calculate the mean and standard deviation **g)** of the cumulative normal psychometric function that fits the probability data.
19. Use the NORMDIST function to calculate values of the psychometric function for the target values **h)** and plot these data on the p "brighter" graph.
20. Use the NORMINV function and the psychometric function parameters **g)** to calculate the PSE, UL, LL, IU and JND measures from the psychometric function **i)**.
21. Plot the PSE, UL, and LL measures on the p "brighter" graph as shown **j)**.



# Lab 2 assignment: submission

22. Create a zip file named **yourlastname\_lab2.zip** that contains the following

22.1. The original .csv data file from your run of the mcs255 experiment.

22.2. A single page PDF named **yourlastname\_lab2\_analysis.pdf** that contains your version of the final analysis spreadsheet for the mcs experiment (see previous slide). Use the spreadsheet on the slide as a guide for layout and formatting. Your spreadsheet does not have to be identical, but it should be mathematically correct, correctly labeled, and legible.

**If for some reason your analysis is not working out, contact me for help and advice on how to proceed. For this reason do not wait until the last minute to do this assignment.**

23. Submit the zip file to the lab2 dropbox by the due date